REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-32 are pending in the application.

I.   Rejections under 35 U.S.C. § 103

McIlvain in view of Barton

In the Office Action, at page 2, claims 1-6, 8, and 18-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,765,200 to McIlvain et al in view of U.S. Patent No. 6,233,389 to Barton et al. This rejection is respectfully traversed because the combination of the teachings of McIlvain and Barton does not suggest:

> sequentially assigning free blocks as discontinuous circular buffer blocks in a disk recording area, based on the control information when a time-delayed viewing mode is selected; and

> recording video streams for time-delayed viewing in the assigned circular buffer blocks,

as recited in independent claim 1.

Further, the combination of the teachings of McIlvain and Barton does not suggest:

> a video stream storing area which records video streams, wherein the video stream storing area comprises video stream blocks which are arranged discontinuously; and

> a control information area which stores control information relating to the video stream storing area,

as recited in independent claim 18.

As a non-limiting example, the present invention as set forth in claim 1, for example, is directed to a method of video stream processing in which circular buffer blocks are arranged discontinuously such that time-delayed viewing of a channel can be implemented simultaneously with recording/reproduction of another channel. The method includes sequentially assigning free blocks as discontinuous circular buffer blocks in a disk recording area, based on control information when a time-delayed viewing mode is selected. Video streams are recorded for time-delayed viewing in the assigned circular buffer blocks.

McIlvain discusses a logical positioning mechanism provided within a storage controller to determine which logical position is to be accessed next. McIlvain is a computer system that uses the storage controller, a plurality of processors and a storage device, where the storage

10

controller includes the logical position indicator to determine which of a plurality of logical positions within the storage device is to be accessed by one or more of the processors. As the storage controller determines the next location to write the data, the host processors are relieved of the task. The storage device includes data sets 202, which each include a plurality of logical positions, each of which is addressable and is capable of having data stored to or read from. The data set 202 of McIlvain can have one or more extents, each extent including one or more locations that can receive data.

As conceded by the Examiner, McIlvain does not discuss or suggest assigning free blocks as discontinuous circular buffer blocks in a disk recording area, based on the control information when a time-delayed viewing mode is selected. McIlvain does not suggest the sequential assigning of free blocks as discontinuous circular buffer blocks. McIlvain further does not discuss assigning free blocks as discontinuous buffer blocks based on the control information and does not suggest that video streams are recorded in the assigned circular buffer blocks. McIlvain discusses only that data sets can have one or more locations and that a logical position indicator stored within the storage controller can indicate the next logical position within the storage device to be accessed. McIlvain does not suggest sequentially assigning free blocks as discontinuous circular blocks based on control information when a time-delayed viewing mode is selected.

In contrast, the present invention of claim 1, for example, assigns free blocks as discontinuous circular buffer blocks based on control information when a time-delayed viewing mode is selected. The present disclosure specifically states that the term "circular buffer block" is defined as a free block assigned to form a circular buffer and record a video stream for time-delayed viewing therein. Thus, circular buffer blocks are arranged discontinuously so that time-delayed viewing of one channel can be implemented simultaneously with recording/reproduction of another channel. Therefore, for example, if a recording mode is selected together with a time-delayed viewing mode, video streams of a channel to be recorded are recorded in the assigned free blocks, free blocks nearest to the recorded free blocks are assigned as circular buffer blocks and video streams for time-delayed viewing are recorded in the assigned circular buffer blocks.

Further, the present disclosure specifically states that discontinuous assignment of circular buffer blocks does not mean discontinuity of individual circular buffer blocks. Thus, the Applicant respectfully disagrees with the Examiner's interpretation of discontinuous circular

buffer because the free blocks are <u>assigned</u> as discontinuous circular buffer blocks in the present invention of claim 1, for example.

The Examiner indicates that Barton makes up for the deficiency in McIlvain and alleges that "it would have been obvious to one of ordinary skill in the art at the time of the invention to use the video stream processing system, as disclosed by McIlvain et al. and further incorporate a system that records to free blocks based on control information, as disclosed by Barton et al." The Applicants respectfully disagree that Barton makes up for the deficiency in McIlvain.

Barton discusses a system in which multimedia data is stored and replayed, based on inputted control commands from a user. A video component is placed in a circular video buffer and an event is posted in the event buffer containing an indication that a video component was found and the location of the video component in the circular video buffer. Barton does not, however, suggest sequentially assigning free blocks as discontinuous circular buffer blocks based on the control information when a time-delayed viewing mode is selected. Barton discusses only that the event is posted in the event buffer, but does not suggest that the free blocks are <u>sequentially assigned</u> as discontinuous circular buffer blocks based on the control information when a time-delayed viewing mode is selected. Barton does discuss that the user may store selected television broadcast problems while the user is watching or reviewing another program, but Barton does not suggest assigning free blocks as discontinuous circular buffer blocks when a time-delayed viewing mode is selected. The present invention of claim 1, for example, allows a recording mode or reproduction mode to be performed simultaneously with a time-delayed viewing mode.

Further, despite the fact that the combination of McIlvain and Barton fails to suggest all the features of independent claims 1 and 18, there is no motivation cited whatsoever to combine McIlvain and Barton to suggest all the features of independent claims 1 and 18, as is required in establishing a *prima facie* case of obviousness. Motivation is required is asserting a *prima facie* case of obviousness, and the Examiner has failed to provide a motivation, stating only that it would have been obvious to use the video stream processing system of McIlvain and incorporate a system that records to free blocks based on control information of Barton. Merely combining two references without requisite motivation does not adequately establish a *prima facie* case of obviousness.

The applicants respectfully submit that the rejection therefore fails to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or discuss all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). *See* M.P.E.P. § 2142.

Therefore, as the combination of the teachings of McIlvain and Barton does not suggest "sequentially assigning free blocks as discontinuous circular buffer blocks in a disk recording area, based on the control information when a time-delayed viewing mode is selected; and recording video streams for time-delayed viewing in the assigned circular buffer blocks," as recited in independent claim 1, and the combination of the teachings of McIlvain and Barton does not suggest "a video stream storing area which records video streams, wherein the video stream storing area comprises video stream blocks which are arranged discontinuously; and a control information area which stores control information relating to the video stream storing area," as recited in independent claim 18. Therefore, independent claims 1 and 18 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 2-6, 8 and 19-20 depend either directly or indirectly from independent claims 1 and 18 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 2 recites "updating the control information and setting a pointer of a write point to a last one of the assigned circular buffer blocks after the recording of the video streams." Therefore, claims 2-6, 8 and 19-20 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Aoki in view of Barton

In the Office Action, at page 5, claims 21, 23-26 and 28-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,009,231 to Aoki et al in view of Barton. This rejection is respectfully traversed because the combination of the teachings of Aoki and Barton does not suggest:

> a controller which sequentially assigns free blocks as
> discontinuous circular buffer blocks on the recording medium,
> based upon the control information in response to a time-delayed
> viewing mode being selected, and which records video streams for

time-delayed viewing in the assigned circular buffer blocks,

as recited in independent claim 21.

Further, the combination of the teachings of Aoki and Barton does not suggest:

> a controller which records a video stream in free blocks of the
> recording medium or reads a recorded video stream recorded on
> the recording medium and assigns free blocks nearest to the
> recorded or reproduced free blocks as circular buffer blocks,

as recited in independent claim 32.

Aoki discusses a data reproducing method and apparatus that allows for reverse reproduction. In Aoki, data is read from a disk 1 and a ring buffer 4 is memory means into which the data read out of the disk 1 in sector units is written under control of a control circuit 8. In Aoki, when the read pointer advances to read data, which decreases the unread data area and increases the already-read data area, the control circuit 8 controls the pickup 2 to read new data and advances the write pointer to a new address position to be able to write one sector of read data to the ring buffer. Thereby, the sizes of the unread and already-read data areas are almost equal again.

Aoki does not discuss or suggest sequentially assigning free blocks as discontinuous circular buffer blocks. Aoki, specifically in the section cited by the Examiner at col. 7 line 59 – col. 8, line 34, merely discusses that data is stored in a circular buffer and the stored data may be retrieved in a first and a second direction, allowing for reverse reproduction. Aoki does not discuss sequentially assigning free blocks based on control information. Aoki is silent as to assigning free blocks based on control information, and further makes no mention of sequentially assigning free blocks as discontinuous circular buffer blocks on the recording medium. Aoki is completely silent as to assigning free blocks as discontinuous circular buffer blocks based on control information, specifically where the control information is in response to a time-delayed viewing mode.

The Examiner indicates that Barton makes up for the deficiency in Aoki by alleging that Barton discusses a time-delayed viewing mode. The Examiner further alleges that "it would have been obvious to one of ordinary skill in the art at the time of the invention to use the video stream processing system, as disclosed by Aoki et al and further incorporate a system that records to free blocks based on control information, as disclosed by Barton et al." However, the Examiner has cited no motivation whatsoever to combine the teachings of Aoki and Barton. Merely combining two references without requisite motivation does not adequately establish a prima facie case of obviousness. Further, while Barton may disclose time-delayed viewing, it is

14

entirely unclear how Barton makes up for the deficiencies in Aoki as to sequentially assigning free blocks based on control information, where that control information is in response to a time-delayed viewing mode being selected. The Examiner alleges that the system of Barton provides recording of information in various buffers in order of priority, but merely recording information in various buffers does not suggest sequentially assigning free blocks as discontinuous circular buffer blocks based on control information as to time-delayed viewing.

In addition, as to claim 32, Aoki does not discuss or suggest a controller that records a video stream in free blocks of the recording medium or reads a recorded video stream recorded on the recording medium and assigns free blocks nearest to the recorded or reproduced free blocks as circular buffer blocks. There is no discussion in Aoki of these features of claim 32. Further, Barton includes no such discussion of recording a video stream to free blocks or reading a recorded video stream and assigning free blocks nearest to the recorded or reproduced free blocks as circular buffer blocks.

Thus, Aoki does not discuss all the features of independent claims 21 and 32, specifically with respect to sequentially assigning free blocks as discontinuous circular buffer blocks based upon control information, and Barton does not make up for the deficiencies in Aoki. Further, the Examiner has failed to provide any motivation to combine the teachings of Aoki and Barton. Therefore, as the combination of the teachings of Aoki and Barton does not suggest "a controller which sequentially assigns free blocks as discontinuous circular buffer blocks on the recording medium, based upon the control information in response to a time-delayed viewing mode being selected, and which records video streams for time-delayed viewing in the assigned circular buffer blocks," as recited in independent claim 21, and the combination of the teachings of Aoki and Barton does not suggest "a controller which records a video stream in free blocks of the recording medium or reads a recorded video stream recorded on the recording medium and assigns free blocks nearest to the recorded or reproduced free blocks as circular buffer blocks," as recited in independent claim 32, and as there is no motivation cited by the Examiner to combine the teachings of the references, claims 21 and 32 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 23-26 and 28-31 depend either directly or indirectly from independent claim 21 and include all the features of independent claim 21, plus additional features that are not discussed or suggested by the reference relied upon. For example, claim 25 recites that "the controller updates the control information and sets a pointer of a write point to a last one of the

assigned circular buffer blocks after recording the video streams." Therefore, claims 23-26 and 28-31 patentably distinguish over the reference relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

McIlvain in view of Barton and Aoki

In the Office Action, at page 8, claims 7 and 9-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over McIlvain in view of Barton and further in view of Aoki. This rejection is respectfully traversed.

As discussed above with respect to independent claims 1, McIlvain does not discuss or suggest sequentially assigning free blocks as discontinuous circular buffer blocks in a disk recording area, based on the control information and recording video streams for time-delayed viewing in the assigned circular buffer blocks. Further, as conceded by the Examiner, McIlvain in view of Barton do not discuss or suggest "a broadcast receiving system for time-delayed viewing, which includes a hard disk drive having control information required for recording an input signal and reproducing recorded information in a predetermined area," as recited in independent claims 9, 12 and 14.

As discussed above with respect to claims 1 and 18, McIlvain does not discuss or suggest assigning free blocks as discontinuous circular buffer blocks, based on control information required for recording an input signal and reproducing recorded information, and then recording video streams in these assigned buffer blocks, as recited in claims 1, 9, 12 and 14. The Examiner alleges that Barton makes up for the deficiency with respect to the time-delayed viewing, but as discussed above, the combination of McIlvain and Barton fails to suggest sequentially assigning circular buffer blocks based on control information in response to a time-delayed viewing mode being selected. Aoki fails to make up for the deficiency in McIlvain.

As to claims 15-17, McIlvain does not discuss or suggest a stream processing method in a broadcast receiving system for time-delayed viewing that includes a disk drive having control information required for recording an input signal and reproducing recorded information in a predetermined area, and does not discuss or suggest "assigning free blocks of a recording disk area; recording video streams of a channel to be recorded in the assigned free blocks; assigning free blocks nearest to the recorded free blocks as circular buffer blocks; and recording the video streams for time-delayed viewing in the assigned circular buffer blocks," as recited in independent claim 15 and similarly in claims 16 and 17.

As discussed above with respect to claims 21, 23-26, and 28-32, Aoki merely discusses that data is stored in a circular buffer and the stored data may be retrieved in a first and a second direction, allowing for reverse reproduction. Aoki does not discuss or suggest sequentially assigning free blocks as discontinuous free blocks based on control information, nor does Aoki discuss or suggest assigning free blocks of the disk recording area and recording video streams of a channel to be recorded in the assigned free blocks when a recording mode is selected during the time-delayed viewing mode, assigning free blocks nearest to the recorded free blocks as the circular buffer blocks, and recording the video streams for time-delayed viewing in the assigned circular buffer blocks. Aoki merely discusses data storage in a circular buffer and the ability to write to a sector when a reverse reproduction mode is specified (col. 4, lines 15-16), but does not discuss or suggest sequentially assigning free blocks as circular buffer blocks based on control information when a time-delayed viewing mode is selected, recording the video streams for time-delayed viewing in the assigned full blocks, assigning free blocks of the disk recording area and recording video streams of a channel to be recorded in the assigned free blocks when a recording mode is selected during the time-delayed viewing mode, assigning free blocks nearest to the recorded free blocks as the circular buffer blocks, and recording the video streams for time-delayed viewing in the assigned circular buffer blocks. Further, while the Examiner alleges that Aoki has a time delayed viewing and storing, the Examiner does not explain that Aoki discusses using control information based on time delayed viewing to sequentially assign free blocks as circular buffer blocks based on control information as to time delayed viewing.

In addition, the Examiner alleges that "it would have been obvious to one of ordinary skill at the time of the invention to use a video stream processing method, as disclosed by McIlvain et al. and further incorporate a system wherein the video streams are different broadcast channels being entered into the system, as disclosed by Aoki et al." However, the Examiner does not discuss why it would have been obvious to combine McIlvain, Aoki and Barton. The Examiner provides no motivation to combine the references, which is required in establishing a *prima facie* case of obviousness, as stated in M.P.E.P. § 2142.

Therefore, as the combination of the teachings of McIlvain, Aoki and Barton does not suggest all the features of independent claims 1, 9, 12 and 15-17 and as there is no motivation cited by the Examiner to combine McIlvain, Aoki and Barton, independent claims 1, 9, 12 and 15-17 patentably distinguish over the references relied upon. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Claims 7, 10-11 and 13 depend either directly or indirectly from independent claims 1, 9 and 12 and include all the features of their respective independent claims, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 7 recites that "the sequentially assigning free blocks comprises interleavedly assigning the free blocks for each video stream, if the video streams are of different channels to be recorded concurrently." Therefore, claims 7, 10-11 and 13 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

<u>Aoki in view of Peters</u>

In the Office Action, at page 10, claims 22 and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Barton and further in view of U.S. Patent No. 5,884,284 to Peters et al. This rejection is respectfully traversed.

As discussed above with respect to independent claim 21, the combination of the teachings of Aoki and Barton does not discuss or suggest "a controller which sequentially assigns free blocks as discontinuous circular buffer blocks on the recording medium, based upon the control information in response to a time-delayed viewing mode being selected, and which records video streams for time-delayed viewing in the assigned circular buffer blocks." Peters fails to make up for the deficiencies in Aoki and Barton. Specifically, Peters discusses a telecommunication user account system and method that creates, maintains, processes and analyzes data regarding individual users for telecommunications services, but does not discuss or suggest the deficiency in Aoki, namely <u>sequentially assigning</u> free blocks as <u>discontinuous circular buffer blocks</u> based on control information in response to a time-delayed viewing mode selected and recording video streams for time-delayed viewing in the assigned buffer blocks. In addition, there is no adequate motivation cited to combine Aoki and Peters to teach all the claimed features of independent claim 21, as it is unclear how the motivation of allowing "for more information to be transmitted and entered into the system" is an adequate motivation to suggest combining the teachings of Aoki, Barton and Peters.

As the combination of Aoki, Barton and Peters does not suggest all the features of claim 21 and there is no adequate motivation cited to combine Aoki and Peters, independent claim 21 patentably distinguishes over the references relied upon. Claims 22 and 27 depend either directly or indirectly from claim 21 and include all the features of claim 21, plus additional features that are not discussed or suggested by the references relied upon. For example, claim 27 recites "a read-only memory which stores control program data to control the random access

memory and the hard disk drive; and a second random access memory which temporarily stores data during a control operation of the controller." Therefore, claims 22 and 27 patentably distinguish over the references relied upon for at least the reasons noted above. Accordingly, withdrawal of the § 103(a) rejection is respectfully requested.

Conclusion

In accordance with the foregoing, claims 1-32 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.
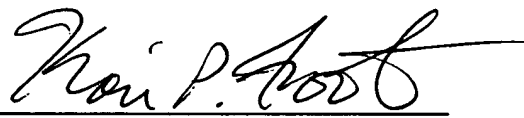
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: _____1/17/07_____   By: _____

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